KOJIMA, Takashi Serial No. 09/817,133

Please replace the paragraphs beginning at page 2, line 7, with the following rewritten paragraphs:

(4)

A gas sensor 9 includes a housing 10, a cup-shaped sensing element 29, an outer cover wall 91, and an inner cover wall 92 which have dimples 911 and 921 formed in bottoms 910 and 920 thereof. The inner cover wall 92 is fitted within the outer cover wall 91 in engagement of the dimple 921 with the dimple 911.



The housing 10 has a small-diameter portion 15 formed on an end portion 106 thereof. The outer and inner cover walls 91 and 92 have open end portions 915 and 925 which are so formed as to be lapped one over the other when the inner cover wall 92 is fitted within the outer cover wall 91 in engagement of the dimple 921 with the dimple 911. The open end portions 915 and 925 are welded as indicated at 14, to the periphery of a side surface 151 of the small-diameter portion 15 of the housing 10.

Please replace the paragraph beginning at page 8, line 18, with the following rewritten paragraph:



The gas sensor 1 generally includes a hollow cylindrical housing 10, a sensing element 2, and a double walled protective cover assembly 70. The sensing element 2 is retained by an insulation porcelain 22 within the housing 10. The protective cover assembly 70 is installed on a side surface 106, as shown in Fig. 3(a), of an end portion of the housing 10 to cover a tip portion (i.e., a sensing portion) 21 of the sensing element 2 projecting outward from an end surface 107 of the housing 10. The protective cover assembly 70 is made up of an outer cylindrical cover 11 and an inner cylindrical



cover 12 disposed within the outer cover coaxially with each other. The outer and inner covers 11 and 12, as clearly shown in Figs. 2 and 3(b), have open end portions 115 and 125 each of which has an L-shape in cross section. The outer and inner covers 11 and 12 have body portions 118 and 128, respectively. The body portion 128 of the inner cover 12 is, as clearly shown in Fig. 1, disposed within the body portion 118 of the outer cover 11 in a non-contact form. The open end portions 115 and 125 expand outward to form annular shoulders 110 and 120. The shoulder 120 is so designed as to be fitted on the shoulder 110 in line engagement therewith to secure a given positional relation between the outer and inner covers 11 and 12 to define a lap of the open end portions 115 and 125 sufficient to be firmly attached to the periphery of a side surface 151, as shown in Fig. 3(a), of a small-diameter portion 15 of the housing 10.

Please replace the paragraph beginning at page 9, line 24, with the following rewritten paragraph:

The outer and inner covers 11 and 12 have formed in the body 25 portions 118 and 128 thereof, as respectively shown in Figs. 4b and 4a, a plurality of gas holes 180 through which the gas to be measured flows into a gas chamber defined inside the inner cover 12. The outer and inner covers 11 and 12 also have formed in bottoms thereof holes 190 coinciding with each other.

Please replace the paragraph beginning at page 10, line 10, with the following rewritten paragraph:

The open end portions 115 and 125 of the outer and inner covers 11 and 12, as





described above in Fig. 3(b), expand outward to define the annular shoulders 110 and 120. The annular shoulders 110 and 120 have corners 111 and 121 which define an annular line contact 13, as shown in Fig. 2, on a horizontal plane extending perpendicular to a longitudinal center line of the cover assembly 70 when the outer cover:11 is fitted on the inner cover 12. Instead of the annular line contact 13, the shoulder 120 may engage the shoulder 110 at a plurality of discrete point contacts. The open end portion 115 of the outer cover 11 also has, as shown in Fig. 3(b), an inner upright side surface 116 and an outer upright side surface 117. Similarly, the open end portion 125 of the inner cover 12 also has an inner upright side surface 126 and an outer upright side surface 127. The inner upright side surface 126 of the inner cover 12 is, as shown in Fig. 2, attached to the side surface 151 of the small-diameter portion 15 of the housing 10 in surface contact. The outer upright side surface 127 of the inner cover 12 establishes a surface contact with the inner upright side surface 116 of the outer cover 11 when the inner cover 12 is fitted within the outer cover 11. Further, the inner cover 12 has an end 124 which, as shown in Fig. 2, engages the horizontal surface 152 of the small-diameter portion 15 of the housing 10 directly.

Please replace the paragraph beginning at page 11, line 14, with the following rewritten paragraph:



First, the inner cover 12 is fitted on the small-diameter portion 15 of the housing 10 in direct contact of the inner upright side surface 126 with the side surface 151, and with the upper end 124 of the inner cover 12 forced into contact with the horizontal surface 152 of the housing 10.

Please replace the paragraph beginning at page 12, line 16, with the following rewritten paragraph:





The shoulders 110 and 120 of the outer and inner covers 11 and 12 may alternatively be, as shown in Fig. 6(a), formed closer to the bottoms of the inner and outer covers 11 and 12.

Please replace the paragraph beginning at page 13, line 13, with the following rewritten paragraph:



The outer cover 31 is put on the inner cover 32 with an inner wall 314 of the open end portion 315 lapped over an outer wall 316 of the open end portion 325 of the inner cover 32. The outer cover 31 abuts at an end thereof against an outer corner 322 of the second shoulder 360 of the inner cover 32. This establishes a given positional relation between the outer cover 31 and the inner cover 32. Specifically, the second shoulder 360 of the inner cover 32 works to position the end portion 315 of the outer cover 31 relative to the housing 10, thereby securing a lap of the open end portions 315 of the outer and inner covers 31 and 32 which is sufficient to be welded, as indicated at 14 in Fig. 7(a), around the periphery of the side surface 151 of the small-diameter portion 15 of the housing 10. Other arrangements are identical with those of the first embodiment, and explanation thereof in detail will be omitted here.

Please replace the paragraph beginning at page 15, line 3, with the following rewritten paragraph:



Specifically, the outer cover 51 has a vertically extending open end portion 515 which has a length greater than that of the open end portion 115 in the first embodiment. The shoulder 520 of the inner cover 52 has an end 522 placed in contact with the end surface 107 of the housing 10. The outer cover 51 is fitted on the small-

